Stock of Thorium

† 423. DR. MURLI MANOHAR JOSHI:
SHRI RAM JETHMALANI:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that 'Thorium' is likely to be available in massive quantity in the country;

(b) if so, whether it is possible to utilize it for generating electricity in the Atomic Sector:

(c) if so, the facts thereof; and

(d) the present status regarding the availability of the said storages of 'Thorium' in the country?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI PRITHVIRAJ CHAVAN): (a) Yes, Sir.

(b) Yes, Sir.

(c) While Thorium by itself cannot serve as a fuel for generating power in a nuclear reactor, it can be converted to Uranium-233 which is a man made fuel when suitably irradiated in a nuclear reactor.

India has formulated a three stage nuclear power programme to optimally use its modest uranium and vast thorium resources to fulfil the increasing energy requirements of the country. Large scale thorium utilization is contemplated in the third stage of this programme, where Uranium-233 bred in fast breeder reactors of the second stage, will be used together with thorium. The Government has taken a number of steps to develop appropriate technologies for the utilization of thorium. A few of the major steps are:

(1) Setting up the research reactor Kamini at Kalpakkam using Uranium-233 fuel obtained from irradiated thorium. The reactor has been operating since 1997. The fuel for the reactor is bred, reprocessed and fabricated indigenously.

(2) Irradiation of thorium fuel bundles in research reactor at Trombay and in Pressurised Heavy Water Reactors (PHWRs).

(3) Design and development of Advanced Heavy Water Reactor (AHWR) using thorium based fuel. Pre-licensing safety review of AHWR has been completed by Atomic Energy Regulatory Board (AERB).

(4) India has developed technologies to reprocess irradiated thorium fuel and in fabricating Uranium-233 based fuel.

(d) Thorium in India is mainly recovered from a naturally occurring mineral-monazite. Monazite is produced as a co-product alongwith ilmenite, zircon, rutile, etc. A quantum of Thorium in the form of thorium concentrate is produced as a by-product of rare earth compounds which are recovered from monazite. 30,000 (thirty thousand) tonnes of such thorium concentrate is stored in silos for future use.

---

† Original notice of the question was received in Hindi.